

## **SPECIFICATIONS for CO-LOCATED DIGITAL AERIAL PHOTOGRAPHY**

This document is a reference guide for consultants providing digital aerial photographic services for Central Federal Lands Highway Division (CFLHD) of the Federal Highway Administration (FHWA), Lakewood, Colorado.

### **I. GENERAL DESCRIPTION**

The service will involve digital imaging of a corridor of road(s) outlined on the attached exhibit. This photography will be taken at the same time that the LiDAR data is being gathered using a digital camera mounted in the aircraft carrying the LiDAR sensor. An inertial navigation system shall be employed in the aircraft to record positional data of the camera, which is used to determine plotter settings for the softcopy Digital Photogrammetric Workstation.

### **II. TECHNICAL REQUIREMENTS**

- A. The camera platform used will be a Contax 645 or another precision digital camera having similar performance characteristics.
- B. FHWA shall furnish photographically identifiable ground control points within the project area, some of which, FHWA may withhold from the Contractor for the purpose of verifying the accuracy of the photographic coverage. The Contractor shall make the necessary adjustments to insure that the resulting photographic images shall fit the photo-identifiable ground control at a 95% confidence level to a horizontal and vertical accuracy of 0.50 foot..
- C. The photographic coverage shall have not less than 55% forward overlap with sufficient side overlap to allow for planimetric ties.
- D. The Ground Sample Distance of the digital imagery shall be not more than 0.5 feet unless authorized in the Scope of Work (SOW).
- E. The imagery shall be free from deep shadows. To insure this, photography shall not be collected when the sun is less than 30° above the horizon unless specific prior permission is obtained from the Government. The images shall be free of clouds, shadows, smoke, haze, snow or other deficiencies, which would interfere with their intended use.
- F. If possible, titling data shall be placed along the edge of overlap on each exposure, with the following information; date, photo scale, project code name and flight line exposure number. The project code name shall be three groups of characters separated by dashes, beginning with "CFL". The fourth and fifth characters represent the year, as in 05 for 2005. The sixth and seventh characters represent the state the project lies in, as in CO for Colorado. The eighth, ninth, tenth and eleventh characters shall designate the project

name which is determined by the CFLHD Project Manager and is provided to the Contractor in the Scope of Work (SOW). The code "CFL-05CO-GRSA" would indicate a 2005 project in Colorado named Great Sand Dunes. The project code name need only appear on the first and last exposures of the flight line. Exposure numbering shall increase as indicated by the direction of the arrows on the flight line maps. Generally, this shall be toward the north and/or west. Each strip shall begin with exposure number one. (This is not meant to dictate direction the airplane is to be flown on the mission.)

### **III. SPECIFICATIONS FOR DELIVERABLES**

- A. The Contractor shall provide to CFLHD image files for each frame of photography in either TIFF or VITEC format. These image files shall be delivered on DVD+R disks in 1/4" jewel cases with disk labels and jewel case inserts stating the Contractor's Name, date of photography, Mission number and names and sizes of the files contained.
- B. The Contractor shall provide a report to CFLHD to include discussion of GPS control, Geoid information and Airborne GPS solutions as well as camera attitude and positional data for each frame of photography. In addition, The Contractor shall provide FHWA with all files needed to accurately set and compile 3-D planimetric mapping from the supplied digital imagery using both Socet Set v4.4.2 and Leica Photogrammetry Suite v8.7.2.